

Traffic Operations Low Cost Enhancement 2009-2011 Biennium

Interim Report

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**Washington State
Department of Transportation**

INTRODUCTION

For the 2009-2011 biennium, the legislature provided WSDOT with \$2.4 million in Motor Vehicle Account proviso funding for statewide prioritized Low Cost Enhancement (LCE) projects administered by the Traffic Operations Program:

2009-11 Budget Bill Proviso Language:

“\$2,400,000 of the motor vehicle account--state appropriation is provided solely for low-cost enhancements. The department shall give priority to low-cost enhancement projects that improve safety or provide congestion relief.

The department shall prioritize low-cost enhancement projects on a statewide rather than a regional basis.

By September 1st of each even-numbered year, the department shall provide a report to the legislature listing all low-cost enhancement projects prioritized on a statewide rather than regional basis completed in the prior year.”

This report fulfills the directive of the Bill Proviso by reporting on statewide LCE projects for the period July 1, 2009, through June 30, 2010. Featured projects are those selected by June 30, 2010. Many projects are “in-progress” or not yet started. This report also includes an appendix listing 2009-11 regional LCE projects completed and in progress as of June 30, 2010.

LCEs are defined as small, low cost projects that can be implemented quickly to improve operational safety or reduce congestion on the highway system. LCE projects generally target problem areas identified in either the priority programming process, or by constituents or elected officials. LCE’s also allow officials to respond quickly to emerging issues related to roadway safety.

Categories of LCE projects include:

- Traffic control signing improvements;
- Roadway striping, rumble strip installation or other road marking improvements;
- Installation or improvement of traffic signals or other electronic devices;
- Roadway access control through channelization or lane reconfiguration.

LCE funding is divided into two categories:

1. \$2.4 million is prioritized by proviso to fund medium sized safety projects of statewide significance costing up to \$100,000. This funding applies to a list of projects in each region, but funding is administered by HQ Traffic Operations. An example of a project in this category is an installation of several miles of rumble strip in a High Accident Corridor (HAC).
2. LCE funding of \$4.4 million is distributed proportionally to each region for projects costing between \$5,000 and \$50,000. An example of a regional LCE project is an individual or series of directional signs installed to enhance safety on a lower volume state highway.

**Summary of Low Cost Enhancement Projects of Statewide Significance
2009-2011 Biennium*
July 1, 2009-June 30, 2010**

***Projects selected by June 30, 2010**

Region	Project Description	Page #	Budget
HQ	LCE Program Management		12,188
HQ	DUI Overcharges		10,000
HQ	Safety Corridor Projects		60,000
HQ	Emerging Projects		200,000
	HQ Sub Total		282,188
NW	Access Restriction SR 204 @ Sunnyside Blvd & 9 th /10 ST SE	3	30,000
NW	Intersection Improvement SR 530 @ Smokey Point Blvd	5	70,000
NW	Wrong Way Modifications – Multiple Locations	6	123,000
NW	Two-Way Left Turn Lane Extension – SR 20 @ Ball Street	7	20,000
NW	Rumble Strip Installation – SR 548 Vista Dr to Birch Bay Jct.	9	49,300
NW	Barrier Installations – SR 522 Kenmore to Bothell	9	125,000
NW	Replace/Upgrade VMS Sign - I-90 WB @ MP 26.24 (SR 18)	11	100,000
NW	New VMS Installation – I-90 EB @ MP 24.5	12	95,112
NW	New VMS Installation – SR 18 EB @ MP 17.40	13	100,000
NW	New Camera Installation – SR 18 EB @ MP 20.4	14	100,000
NW	Rumble Strip Installation – SR 516 E of Military Rd to 74 th Ave S Vic.	15	25,000
	Northwest Region Sub Total		837,412
OR	Flow Map Improvements – SR 512, SR 167 & SR 410	16	120,000
OR	24-Hour No Parking Tow Away Zone Signing – SR 167/512	17	33,000
OR	Centerline Rumble Strip – SR 101 @ Jorsted Creek Bridge to Brockdale	18	100,000
	Olympic Region Sub Total		253,000
SW	I-5 & 78 th Street Interchange – Right Turn Signals	20	40,000
SW	Skid Resistant Surface Treatment on Ramps - SR 14 @ 164 th & I-205	21	60,000
SW	Tunnel Portal Signing Revisions & Enhancements – SR 14 MP 57.8-77.40	22	60,000
SW	Advanced Traveler Information Systems (ATIS) Incident Management Enhancement – SR 14@ MP 12 Vicinity	23	75,000
	Southwest Region Sub Total		235,000
NC	Pedestrian Safety Project – SR 171	25	134,655
NC	Schawana Curves Signing & Flashing Beacons – SR 243 MP 17.7-18.5	26	29,160
NC	Intersection Warning Sign & Beacon --SR 26 @ SR 243	28	43,000
	North Central Region Sub Total		206,815
SC	Swift Cemetery Right Turn Pockets – SR 240	30	100,000
SC	Old Naches Hwy Over Speed Detection & Flashing Sign – US 12	31	30,000
SC	Flashing Yellow Arrow – US 395 @ Kennewick Ave & Clearwater	32	15,000
	South Central Region Sub Total		145,000
EA	Cheney-Spokane Rd Right Turn Lane/Corridor Safety Project - SR 195 MP 92.82-94.32	33	10,000
	Eastern Region Sub Total		10,000
	GRAND TOTAL		\$1,969,415

2009-11

LOW COST ENHANCEMENTS STATEWIDE PROJECTS: INTERIM REPORT

NORTHWEST REGION

Project Title: Access Restriction
Location: SR 204 @ Sunnyside Blvd & 9th/10th St SE

Background/Statement of Need

This project implements improvements at two non-signalized intersections on State Route (SR) 204 (Sunnyside Blvd and 9th/10th Street SE) located ½ mile apart, both with a history of multiple angle collisions. The combined data for the intersections show that 70% of the crashes are related to left turning movements.

Both intersections are located within High Accident Corridors (HAC) designated in four sequential biennial reviews. The speed limit along this corridor is 55 mph, but speed studies show an 85th percentile speed of 65 mph. Traffic engineers determined that the best solution for improving safety at these intersections involved engineering safer alternatives to the unprotected left turns from the intersections onto the highway.

Solution

The project objective is to reduce accidents by eliminating the highest-risk turning movements to and from the Sunnyside Blvd and 9th/10th Street SE intersections. The new lane arrangement will be accomplished using median islands, curbing, and regulatory signs.

By Oct 2009, all pavement markings for the new lane configuration and temporary islands defined by barrels were completed. The final stage of work involving the installation of raised islands was suspended due to weather. The plan was then to schedule a return to the site and complete the project in early spring 2010.

However, in January 2010, the City of Lake Stevens annexed nine square miles including 1½ miles of SR 204 along with the intersection of 9th/10th. With a new population of over 25,000, state law requires the city to assume lead responsibility for operations on the highway within three years. In addition, in early 2010 the city informed WSDOT that trip diversion actions taken for the safety project was unacceptable for one business located at the 9th/10^t Street SE intersection. Since that time, discussions have been underway with the city to find resolution. One possible outcome is for the city to formally take early responsibility for the highway.



Sunnyside Project Before Implementation



Sunnyside Project at Partial Completion

Project Benefits

The turn restrictions will better manage conflict points through this high speed corridor. Safer alternative routes to and from the highway make use of the city and county grid. Additionally, a left turn refuge area will be provided on SR 204 for motorists making a left turn onto the highway from 9th Street. The refuge simplifies the left turn by requiring only a gap in westbound traffic.

Project Timeline & Status

- September 2009 Start
- July 1, 2010 – The project is approximately 90% complete and WSDOT is awaiting a decision from the City of Lake Stevens on the issue at the 9th Street intersection. Project completion is expected by the end of 2010.

Financial Information

Budget: \$30,000

Project Title: Intersection Improvement
Location: SR 530 @ Smokey Point Blvd

Background/Statement of Need

State Route 530 Smokey Point Wye is comprised of three intersections on SR 530 located 400-feet apart. The east and west junctions of the Wye connect to Smokey Point Blvd and travel south to become an arterial into the City of Arlington. In the middle of those east/west junctions is the 27th Ave NE intersection serving farming parcels and a private park to the north.

This area has a high crash history reflecting considerable difficulty making left turns leaving, and entering SR 530. The Smokey Point Wye has no turn lanes for left turn traffic. The west junction meets signal warrants, and the east junction fulfills volume warrants for a left turn lane. The 27th Ave NE intersection has a pronounced crash pattern of eastbound rear-end crashes on SR 530 associated with traffic waiting to turn left onto 27th Ave NE. Many are recreational and farming vehicles which are slower and more exposed when turning so require longer gaps.

Solution

This project replaces the existing two-lane highway with a continuous three-lane layout that will serve as left turn storage at all three intersections. At the east junction the center lane will be a one-way westbound left turn lane. At the west junction the center lane will function as a left turn refuge for the northbound left turn onto SR 530; a two-step turn will be a safer option during busy peak periods. At the 27th Ave NE intersection, the center lane will serve as both left turn storage for traffic arriving from the west, and as a refuge for those turning left to travel east.

The project design is complete except that the project site is within the 500-year flood plain so is subject to increased environmental review, which is underway and awaiting approval. Implementation will primarily be accomplished by restriping existing pavement with some minor widening on the south side in order to achieve adequate shoulder widths. If the environmental review is quick and outcomes are favorable, the paving crew can be mobilized in August and the project will be completed in 2010. Otherwise, the project will be completed in 2011.

Project Site



Smokey Point Wye and 27th Ave NE

Project Benefits

The center turn lane will more safely accommodate the left turn needs at the three Smokey Point Wye intersections.

Project Timeline

- December 2009 Start
- September 2010 - Completion with best outcomes
- May 2011 - Completion if there are delays in permitting

Financial Information

Budget: \$70,000

Project Title: Wrong Way Prevention Modifications
Location: Multiple Locations

Background/Statement of Need

This issue is a strong focus for the WSP, WSDOT, and the media. WSDOT & WSP are focused on reducing the incidence of crashes relating to wrong-way movement onto freeway off-ramps. Data screening and Geographic Information Systems (GIS) and mapping tools are being used to help regions identify locations that have either a high occurrence of wrong-way incidents, or those with a high probability of drivers committing wrong-way errors. In all ten sites were selected for modifications, and another twelve for signing upgrades.

Solution

This project applies two solutions for wrong-way preventive actions:

1. At ten select interchanges, the project comprehensively examines all aspects of the interchange including signing, channelization, and signal displays. Most solutions involved channelization, including widening and reshaping median islands, installing curbing to block error-paths, relocating stop bars, and adding yellow guide radius striping. The average expenditure for these types of solutions is \$10,000 per location. The majority of investigation and design is complete, and about 45% of the installation work is complete.
2. At an estimated twelve additional interchanges, the signing for wrong-way deterrence will be upgraded to meet current size and placement standards. Work on these twelve locations is in the early planning stages.

Project Site



Wrong Way Prevention Modifications, Signing, Island Installation & Striping Guideline

Project Benefits

This project provides a systematic effort at addressing interchanges with the greatest historical occurrence and risk potential for wrong-way errors.

Project Timeline

- September 2009 Start
- March 2011 Estimated Completion

Financial Information

Budget: \$123,000

Project Title: Two-Way Left Turn Lane (TWLTL) Extension
Location: SR 20 @ Ball Street

Background/Statement of Need

Ball Street is located at the western end of a commercial area in the City of Sedro-Woolley. The project location is within the limits of a High Accident Location (HAL) identified in 2006 that has no left turn lanes and averages about ten crashes per year. Approximately 80% of the crashes at the intersection are rear-end, indicating potential for significant improvement by installing a left turn lane.

For the purposes of its land-use planning and achieving corridor consistency, the city views the Ball Street intersection as part of the commercial corridor extending to the east. The highway section east of Ball Street has three lanes with a center turn lane to serve left turns at driveways and intersections. The existing SR 20 lane arrangement transitions to a two lane configuration at Ball Street.

Solution

This project would extend the three lane highway further west to include Ball Street adding it to the TWLTL corridor. The proposed lane arrangement for Ball Street would provide a center turn lane for both left turn vehicles leaving the highway; it would also act as a refuge for vehicles turning left into the highway.

The new lane arrangement would be developed by laterally shifting thru lanes onto existing shoulders (which contains pavement sufficiently wide to accommodate three lanes with 3.5 foot shoulders). Minor widening is also planned on Ball to create the proper turning radius into the highway.

Coincidentally, Sedro-Woolley independently identified the same needs at this intersection that were outlined in the 2009 LCE project application. The city's project intention was not known to WSDOT until after the Q funding-allocation was made. Consequently, the city will apply for a grant in August 2010, to build a three lane section through the intersection and provide other multi modal enhancements such as bike lanes and sidewalks. The grant awards will be made in November 2010.

Since the City's grant would preclude the need for this LCE project, the region decided to wait and see if the grant is awarded. To support the city on its project, NWR will contribute an amount equal to what it would have spent on the LCE project. If the city is not awarded the grant, WSDOT will proceed with its LCE project in the spring of 2011.

Project Site



Ball Street Intersection with SR 20, Sedro Woolley

Project Benefits

Improve safety for left turning vehicles

Project Timeline

- July 2010 - Design completed; project on hold
- November 2010 - Decision on City of Sedro Woolley grant

Financial Information

Budget: \$20,000

Project Title: Rumble Strip Installation
Location: SR 548 – Vista Drive to Birch Bay Junction

Background/Statement of Need

SR 548 is a rural two-lane highway with a posted speed limit of 55mph and a history of Run-Off-The-Road (ROTR) collisions. From 2004-2005 there were five ROTR collisions; from 2006 to 2008 there were ten ROTR collisions including one serious injury collision, and from January to April 2009 there were four ROTR collisions.

Solution

Install ground in rumble strips on the roadway shoulders.

Project Site



Project Benefits

This project will mitigate the ROTR risk and reduce the severity of injury collisions as measured by Highway Safety Manual standards for rural multi-lane highways.

Project Timeline

- January 2010 Start
- October 2010 Estimated Completion Date

Financial Information

Budget: \$49,300

Project Title: Barrier Installations
Location: SR 522 – Kenmore to Bothell

Background/Statement of Need

In May 2008 the Chief of the Northshore Fire Department in Kenmore contacted WSDOT regarding a fatality ROTR incident that occurred on SR 522 between Kenmore and Bothell City Limits. A vehicle rolled down the roadway side slope and landed next to the Burke-Gilman Trail. The Chief voiced his concern about the high risk of ROTRs along this segment of roadway, and requested that WSDOT install guardrail to mitigate

them. There were engineering concerns about the ability to construct this project due to steep slopes and the proximity of underground and overhead utilities.

Solution

WSDOT constructed Type 31 beam guardrail, terminal and guide posts along the eastbound right shoulder of SR 522 from MP 8.22 to MP 8.58.



Project Site - SR 522 Before Guard Rail Installation



Project Site – SR 522 After Guard Rail Installation

Project Benefits

Eliminates run off the road accidents in the vicinity of the Burke-Gilman Trail.

Project Timeline

- September 2009 Start
- July 2010 Completed

Financial Information

Budget: \$125,000

Project Title: Replace/Upgrade Variable Message Sign (VMS)
Location: I-90 Westbound @ Milepost 26.24 (SR 18)

Background/Statement of Need

Maintenance personnel requested upgrading this VMS sign because of its importance for communicating road conditions and closures on SR 18 during winter weather events. At elevation 1377, Tiger Mountain summit on SR 18 is frequently prone to adverse weather conditions. The current sign on westbound I-90 can be difficult to see. Although the sign is less than fifteen years old, it is functionally obsolete, too small by current standards to adequately convey the advanced roadway conditions on SR 18. The sign has served well, but is in need of being replaced by a larger sign with advanced communication capabilities. This interchange has increased in importance because Maintenance also uses this route to detour traffic and/or restrict truck traffic. There were also constituent complaints about the visibility of this sign.

Solution

Upgrade the existing VMS sign westbound on I-90 at MP 26.24 in advance of SR 18 and the SR 18 Tiger Summit.

Project Site



Project Benefits

This VMS will use state-of-the-art Intelligent Transportation System (ITS) equipment to alert motorists to adverse winter road conditions on SR 18 and road closures or delays due to other incidents occurring in non-winter months. Additionally, it will convey crucial traveler information regarding SR 18 as a bypass route for Seattle area traffic (especially truck traffic) destined to southwest Washington from eastern Washington via I-90 and I-5. Providing timely road conditions and travel information via reliable equipment to both commercial and non-commercial highway users is crucial at this location.

Project Timeline

- November 2009 Start Date
- November 2010 Estimated Completion Date

Financial Information

Budget: \$100,000

Project Title: New Variable Message Sign Installation
Location: I-90 Eastbound @ Milepost 24.5

Background/Statement of Need

This sign was requested by the NW Region Traffic Operations office. High volumes of local traffic generated in the vicinity of Exit 27 often result in traffic backing up the off-ramp onto eastbound I-90 in the vicinity of both Exit 25 and Exit 27.

I-90 over Snoqualmie Pass is the primary route between eastern and western Washington, and with an approximate elevation of 3,022 feet it routinely experiences adverse weather conditions during the winter months. Therefore, providing current road conditions and weather information about the pass to the traveling public is a critical function. Additionally, there are a high number of constituent requests for improving travel information for the vicinity of Exits 25 and 27.

Solution

The solution for enhancing traveler information about Snoqualmie Pass is to install a state-of-the-art VMS eastbound on I-90 at MP 24.3. This VMS will serve as a tool for alerting motorists about current traffic and road surface conditions in the vicinity of Exit 27, as well as providing advance notice for traffic advisory conditions on I-90 east to Snoqualmie Pass and beyond.

Project Site



Project Benefits

The addition of a new technology VMS will benefit travelers by providing reliable and current real time information to aid in driver decisions regarding local conditions in the area of Exit 25 and Exit 27 as well as pass conditions at Snoqualmie Pass.

Project Timeline

- November 2009 Start Date
- December 2010 Estimated Completion Date

Financial Information

Budget: \$95,112

Project Title: New Variable Message Sign Installation
Location: SR 18 Eastbound @ Milepost 17.40

Background/Statement of Need

This is a new sign requested by Maintenance personnel who are often called out to close portions of SR 18 at the 1,377' elevation at Tiger Summit during winter weather events. Maintenance uses this route to detour traffic to alternate routes and/or restrict truck traffic. There were also constituent requests for installing this sign.

Solution

Install a new VMS technology sign Eastbound in advance of Tiger Summit. This sign will benefit travelers by providing reliable and current real time information to aid in driver decisions regarding pass conditions. This sign also supports the system of VMS signs and cameras impacting SR 18, giving comprehensive coverage about advanced roadway conditions on SR 18's Tiger Mountain summit.

Project Site



Project Benefits

This VMS will be a part of the system that uses state-of-the-art ITS equipment to warn motorists of impending adverse winter road conditions, road closures or delays due to incidents occurring during non-winter months, and the need to make safe decisions regarding them. Additionally, the VMS will relay crucial traveler information regarding SR 18 as a bypass route for traffic from eastern Washington (especially truck traffic) destined to southwest Washington via I-90 and I-5. Providing timely road conditions and travel information via reliable equipment to both commercial and non-commercial highway users is crucial at this location.

Project Timeline

- November 2009 Start
- October 2010 Estimated Completion Date

Financial Information

Budget: \$100,000

Project Title: New Camera Installation
Location: SR 18 Eastbound @ Milepost 20.40

Background/Statement of Need

This is a new camera requested by Maintenance personnel who are often called out to close portions of SR 18 during winter weather events. The roadway elevation at Tiger Summit is 1377 feet, making it prone to adverse weather conditions during the winter months. Also, the SR 18/I-90 junction has increased importance because Maintenance uses this route to detour traffic when restricting truck traffic on I-90. There were also substantial constituent requests to install this sign.

Solution

Install a camera in the median west of the Issaquah-Hobart Rd overcrossing and a second camera east of the overcrossing on the eastbound right shoulder behind the barrier in the vicinity where the freeway ends and the roadway width starts to narrow.

Project Site



Project Benefits

Providing timely road conditions and travel information via reliable equipment to both commercial and non-commercial highway users is crucial in this location. This pair of cameras will help the agency alert motorists to impending winter road conditions on SR 18, and road closures and delays due to other incidents that occur in non winter months. Additionally, traveler information on SR 18 is crucial for I-90 traffic (especially truck traffic) bypassing the Seattle urban area. SR 18 also serves as a bypass for I-90 traffic connecting from southwestern Washington to eastern Washington via I-5 and I-90.

Project Timeline

- November 2009 – Start
- October 2010 – Estimated Completion Date

Financial Information

Budget: \$100,000

Project Title: Rumble Strip Installation
Location: SR 516 East of Military Road to 74th Ave S Vicinity

Background/Statement of Need

This segment of SR 516 from Military Road east to the vicinity of 74th Avenue South is a multi-lane highway in a semi urban area with a posted speed limit of 55mph and shoulders four feet or greater on semi-tangent sections. It had been identified as a high accident area with 32 ROTR collisions occurring from 2006-2008 with one serious injury. Although improvements for intersection signing, channelization and signal revisions were made, a high number of ROTR collisions kept occurring.

Solution

Install rolled-in or ground-in shoulder rumble strip to deter vehicles from erring from the roadway.

Project Site

516 Inc 2009: SRMP 3.92 / ARM 3.91



Project Benefits

This project will mitigate the run-off the road risk, and reduce the severity of injury collisions.

Project Timeline

- March 2010 Start
- October 2010 Estimated Completion Date
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Financial Information

Budget: \$25,000

Olympic Region

Project Title: SR 512, SR 167 and SR 410
Portland to King County Line
Flow Map Improvements

Location: SR 512, MP 3.53 to MP 12.04
SR 167, MP 5.99 to MP 10.94
SR 410, MP 8.84 to MP 11.79

Background/Statement of Need

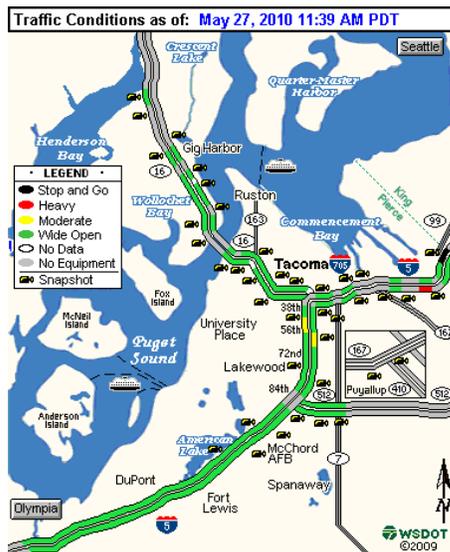
SR512, SR167, and SR410 are the major alternate routes to and from Seattle in the event of freeway incidents, or construction, and maintenance activities along the Tacoma I-5 corridor. To effectively redirect traffic to alternate routes, the Traffic Management Center (TMC) needs to be able to monitor real-time traffic conditions on these routes.

Solution

Install data stations to provide real-time traveler/traffic information on SR 512, SR 167, and SR 410 in Pierce County.

Project Site

Below is the existing flow map for Tacoma. The gray area on SR 512 will gain data as a result of this project. A new flow map will be developed to show all of SR 512, SR 167 to the King County line and SR 410 through Sumner.





Side Fire Radio Wave Data Station

Project Benefits

This project will allow the regional TMC operators to assess real-time conditions on SR 512/SR 167/SR 410 routes and be able to efficiently manage traffic flow during recurring and non-recurring congestion in the Tacoma area. The proposed data stations will provide up-to-date traveler information to travelers and other agencies.

Project Timeline

- October 2010 Start
- February 2011 Estimated Completion Date:

Financial Information

Budget: \$120,000

Project Title: 24-Hour No Parking Tow Away Zone
Location: SR 167/512

Background/Statement of Need

The WSP requested and received approval to extend the “NO PARKING TOW AWAY ZONE” on both SR 167 and SR 512. The Washington State Patrol (WSP) wanted to strengthen the state’s ability to remove vehicles abandoned on the shoulder to help eliminate conflict with errant vehicles traveling the SR 16 and the SR 512 mainlines.

Solution

Extend “NO PARKING TOW AWAY ZONE” signing on SR 512 from the Steele Street interchange to the SR 167 interchange and on SR 167 from the Meridian interchange to the Pierce-King County line.

Project Site



New Tow-Away Zone Sign

Project Benefits

Reduce the occurrence of conflict between abandoned vehicles parked on the roadway shoulder and errant vehicles straying from the mainline.

Project Timeline

- November 2009 Start
- November 2009 Completed

Financial Information

Budget: \$33,000

Project Title: Centerline Rumble Strip
Location: SR 101- Jorsted Creek Bridge to Brockdale Road
Vicinity (MP 321.71 to MP 341.27)

Background/Statement of Need

This segment of US 101 is a rural, two-lane roadway in rolling terrain that traverses through several small communities. It is a winding road that skirts the Hood Canal with several areas of back-to-back horizontal curves containing a significant area of narrow (two to four feet) shoulders. The speed limit along this segment of highway varies from 30 mph to 55 mph. Although variable, the dominating roadside features consist of deep fill slopes on the west side, (with only some slopes protected by guardrail) while the east or water side of the roadway is steep cut banks. These conditions contribute to a high occurrence of crossing centerline fatal and serious injury collisions along the roadway.

Solution

This project constructed ground in centerline rumble strips throughout the project limits, with the exception of areas that have a speed limit less than 35 mph (Hoodsport and Lilliwaup).

Project Site**Project Benefits**

Data shows that installing centerline rumble strips significantly reduces crossing centerline crashes and their corresponding fatal and serious injuries.

Project Timeline

- May 2010 Start
- May 2010 Completed

Financial Information

Budget: \$100,000

SOUTHWEST REGION

Project Title: I-5 & 78th Street Interchange - Right-Turn Signals
Location: I-5/78th Street I/C MP 5.41 Vicinity

Background/Statement of Need

The interchange at I-5/78th Street is an urban interchange with right-turn movements at the ramp terminals controlled by stop signs. This location experiences frequent rear-end collisions for the right-turning traffic because of the stop-and-go nature of this movement.

Solution Implementation

The best solution at this site was to install right-turn signal displays. This will reduce the potential for rear-end collisions by giving the right-turn movement a dedicated amount of right-of-way time to complete the turn without having to stop and look for a gap.

I-5/78th Street Interchange: Before



I-5/78th Street Interchange: After

Project Benefits

Reduce frequency and severity of rear-end collisions.

Project Timeline

- January 2010 Start
- June 2010 Completed

Financial Information

Budget: \$40,000

Project Title: Application of Skid Resistant Surface Treatment to Ramps

Location: SR 14 & 164th & SR 14 & I-205

Background/Statement of Need

These freeway ramps experienced a high occurrence of wet weather accidents over a period of three years (27 accidents in which 20 occurred on wet pavement). The majority of accidents were single vehicle ROTR accidents occurring in the curve sections, in close proximity to one another. These ramps had also been identified as a HAL in the last two biennia. Earlier attempts to mitigate the accidents with chevrons and oversized large arrows proved unsuccessful.

Solution

The pavement was treated with a skid resistant surfacing product known to increase the friction and braking ability of vehicles. The product is composed of an epoxy resin binder with bauxite, which maintains its durability and sharp edges far greater than other aggregates. This results in lasting high skid resistance in both wet and dry weather. The SR 14 ramp was treated with the product for a length of about 500 feet, while the I-205 ramp was treated in two locations for a total of about 700 feet.

Project Site



Project Benefits

While this technique is relatively new in the US, the Federal Highway Administration (FHWA) has reported wet pavement accident reduction of up to 50% in some cases using this product. The treatment gives the roadway more friction, adding skid resistance and resulting in less lane departures. The region also conducted a before and after study at the site to determine suitability of the product to other sites.

Project Timeline

- March 2010 Start
- September 2010 Estimated Completion Date

Financial Information

Budget: \$60,000

Project Title: Tunnel Portal Signing Revision & Minor Enhancements

Location: SR 14 - MP 57.80 to MP 77.40

Background/Statement of Need

This project, primarily through signing, will give truck drivers better guidance to stay within their lane while avoiding colliding with tunnel portals. The portals in the SR 14 tunnels are arched so they do not have uniform 14' high clearance across the width of the tunnel. Consequently, trucks traveling through the tunnels frequently stray across the centerline (even though they have rumble-strips), in their attempts to avoid the area near the fog line where the arched portals are lower.

Solution

This solution will revise signing to better define tunnel ceiling clearances. The Manual on Uniform Traffic Control Devices (MUTCD) and *WSDOT Traffic Manual* provide for adding two or more signs at the tunnel. In addition, ground mounted signing will be revised to include speed advisories, and interior retro-reflectors will be added to the tunnel walls to improve visibility. Also being proposed for installation on SR 14 are two large signs, one eastbound approaching the Bridge of the Gods, and the other westbound approaching the SR 197 Bridge, warning truckers about the low clearance tunnels and providing alternative routes. Finally, the region is considering installing rumble strips across the lanes approaching the tunnel.

Project Site



Project Benefits

Reduce the risks of cross-over and side-swipe accidents.

Project Timeline

- January 2010 Start
- June 2011 Estimated Completion Date

Financial Information

Budget: \$60,000

Project title: SR 14 - Advanced Traveler Information Systems (ATIS)
Incident Management Enhancement

Location: MP 6 – MP 12 Vic.

Background/Statement of Need

The section of SR 14 from the vicinity of MP 6 to MP 12 currently has no ITS infrastructure. There is a compelling need because this area has become a highly traveled commuter route connecting the Vancouver Metro area with Portland via the I-205 Glenn Jackson Bridge. There is a pending project funded by Congestion Mitigation and Air Quality (CMAQ) Program that will provide fiber optic, a microwave wireless communication system, traffic cameras, data stations, and a VMS for traveler information. Data from this project will be shared with regional partners via the bi-state metropolitan ATIS website. However, due to lack of funding, a deficiency still exists for access and interface to the ITS/ATIS. This project fills the gap in the CMAQ funding.

Solution

Close the current short gap between WSDOT's communication system and the City of Vancouver regarding fiber optic cable available for WSDOT use via the Vancouver Area Smart Trek (VAST) partnership agreement. Provide an additional high level of traffic management and surveillance cameras along with an associated redundant communication fiber optic path to access an existing shared City of Vancouver fiber optic cable just beyond the 192nd Ave interchange.

Project Benefits

Provide robust travel information to motorists using this congested commuter route.

Project Timeline

- June 2010 Start
- October 2010 Estimated Completion

Financial

Budget: \$75,000

NORTH CENTRAL REGION

Project Title: Pedestrian Safety Project
Location: SR 171

Background/Statement of Need

Crossing SR171 in Moses Lake is difficult for pedestrians and bicycles due to a relatively high speed limit (40 MPH) combined with long crossing distances (70 feet). An eleven year collision history shows six pedestrian collisions on this two mile section of SR171. Three of the collisions resulted in fatalities, with two of the fatalities in the last four years occurring near the Burress Avenue crossing.

Solution

Provide high visibility crossings by constructing pedestrian activated flashing beacon systems and illumination at two locations, Burress Avenue and S Western Avenue. Due to the length of the crossings, refuge islands will be constructed in the two way left turn lane allowing for placement of signs and beacons in the median to make them more visible.

Project Sites



Before Mid Block Crossing at SR 171 & Burress Project



Improved Mid Block Crossing at SR 171 & Burress



Before Mid Block Crossing at SR 171 & Western Project



Improved Mid Block Crossings at SR 171 & Western

Project Benefits

Improve safety by increasing driver awareness of pedestrians' intent to cross, and giving pedestrians a refuge island in the middle of the crossing.

Project Timeline

- September 2009 Start
- July 2010 Completed

Financial Information

Budget: \$134,655

Project Title: Schawana Curves – Signing/Flashing Beacons
Location: SR 243 MP 17.7 – 18.5

Background/Statement of Need

The roadway curves located between Schawana and Mattawa on SR 243 lie between basalt cliffs on the east and the Columbia River on the west where roadway shoulders are narrow and there is no room to widen them. There has been a history of accidents here including ROTR trucks going through the guardrail, and into the river.

A three year collision history at this location (January 2006 – December 2008) indicates that there were four collisions in the curve area. There were two single vehicle and two multiple vehicle collisions in this area. A fatal collision also occurred in February 2004.

Solution

Improve safety by adding chevrons and solar powered flashing beacons at the beginning of the curves.

Project Site



SR 243 Southbound MP 17.90



SR 243 Northbound MP 18.41

Project Benefits

Improve the effectiveness of the warning signs to reduce runoff accidents within the curve area.

Project Timeline

- December 2009 Start
- October 2010 Estimated Completion

Financial Information

Budget: \$29,160

Project Title: Intersection Warning Sign & Beacon
Location: SR 26 @ SR 243

Background/Statement of Need

SR 26 eastbound begins at I-90 at the east end of the I-90 Vantage Bridge. All eastbound traffic on SR26 at this point has exited from I-90 with a speed limit of 70 MPH. The speed limit has dropped to 60 mph, but because of the close proximity to I-90 it is likely that much of the eastbound traffic has not decreased to the lower speed limit. One mile after leaving I-90, SR26 eastbound approaches the intersection with SR 243, while traveling downhill and around a left-hand curve.

A three year collision history (January 2006 – December 2008) at this location shows a total of five collisions: four entering at angle and one vehicle overturned (three were eastbound). Three were injury collisions and one was a fatality.

Solution

To warn traffic leaving I-90 to slow down, a side road symbol sign, with a flashing beacon will be installed on SR 26 visible to eastbound traffic prior to the Junction of SR 243. The flashing beacon will begin flashing as north bound traffic on SR 243 approaches the stop sign and remain flashing while vehicles are stopped at the stop bar waiting to enter SR 26.

Project Site



SR 26 Eastbound MP 0.94



SR 26 Westbound MP 1.08

Project Benefits

Reduce the number and severity of collisions by raising the awareness of eastbound motorists on SR 26 that traffic on SR 243 will be turning onto SR 26.

Project Timeline

- December 2009 Start
- October 2010 Estimated Completion

Financial Information

Budget: \$43,000

SOUTH CENTRAL REGION

Project Title: Swift Cemetery Right Turn Pockets
Location: SR 240

Background/Statement of Need

This section of SR 240 is called the “Richland Bypass.” The highway is a six lane, 55 mph, signalized corridor that is used daily by commuters who work on the United States Department of Energy (USDOE) Hanford Site. When drivers want to turn right at Swift, they must drastically slow down to make the turn which impedes the thru drivers and causes concern. Also, when thru traffic is stopped for the signal, right-turning traffic cannot get by to make a right turn on red, reducing the efficiency of the signal.

Solution

Install a standard right-turn pocket with appropriate deceleration length. The construction work will be added to an upcoming construction project in the vicinity.

Project Site

240 Dec 2009: SRMP 33.07 / ARM 31.30



Project Benefits

Increase roadway safety and capacity by adding a right turn lane.

Project Timeline

- March 2011 Start
- June 2011 Estimated Completion

Financial Information

Budget: \$100,000

Project Title: Old Naches Hwy Over-Speed Detection & Flashing Sign
Location: US 12

Background/Statement of Need

This is a 60 mph semi-urban expressway near Yakima with a history of collisions, many involving trucks unable to stop for the changing signal. At one time an interchange was proposed as a permanent solution, but a signal was installed as an interim measure. After the signal was installed, collisions continued and constituents requested that the region install a “prepare to stop when flashing” sign. The region has continued to get requests for this sign.

Solution

This will be a two part solution. Initially, the region will install the “prepare to stop when flashing” sign as requested. In addition, another solution will be tried on a trial basis. It involves emergent signal technology where traffic detectors identify heavy vehicles traveling in the “dilemma zone” approaching the signal and automatically extend the green time to allow them to clear the intersection.

Project Site

012 Inc 2009: SRMP 197.97 / ARM 197.66



Skid Marks on US 12 @ Old Naches Highway

Project Benefits

Improve safety by reducing collisions at this high speed signalized intersection.

Project Timeline

- April 2010 Start Date
- August 2010 Estimated Completion

Financial Information

Budget: \$30,000

Project Title: Flashing Yellow Arrow
Location: US 395 @ Kennewick Ave. & Clearwater

Background/Statement of Need

There are two signalized intersections on US 395 traveling through the City of Kennewick. Both have protected/permissive left-turn control that use a five display signal head. WSDOT and the City Traffic Engineer agreed that changing the signal displays to include the new “flashing yellow arrow” will greatly improve the efficiency of these signals.

Solution

Adding the flashing yellow arrow required removing the existing 5 section display and replacing it with a four section with arrows and a three section display for thru traffic. The signal controller and conflict monitor will be upgraded.

Project Site



Project Benefits

This change will allow the signals at these two very busy intersections will increase safety and allow the signal to run more efficiently.

Project Timeline

- July 2010 Estimated Start
- November 2010 Estimated Completion

Financial Information

Budget: \$15,000

EASTERN REGION

Project Title: Cheney-Spokane Road Right Turn Lane/Corridor Safety Project

Location: SR 195 MP 92.82 – 94.32

Background/Statement of Need

This intersection has a history of collisions primarily related to drivers not waiting for a long enough gap to enter the highway. Ninety seven collisions were recorded from January of 1999 thru December of 2009, including one fatality in 2009. Eighty five of these collisions involved vehicles entering the roadway at-angle. In 70 of these collisions, a major contributing cause was not granting right-of-way to oncoming traffic. Given the high societal cost of collisions this became a high priority project.

Solution

Remove right turns from mainline by restoring old alignment for use as an exit ramp. This project will use a portion of the cost overrun contingency funding left over from the US 195 Exit/Right Turn project to research potential Low Cost projects suggested by the Traffic Safety Corridor Team.

Project Site



Project Benefits

The safety benefit is the elimination of potential sight distance obstruction created by right turning vehicles. Removing the right turning volume reduces the number of vehicles passing through the intersection and improves gap-acceptance decisions made by side-street drivers. Before-after collision data analysis shows that offset right-turn lanes can be effective in reducing entering-at-angle collisions at High Speed At-Grade Intersections.

Project Timeline

- September 2009 Start
December 2009 Completion

Financial Information

Budget: \$10,000

Regional LCE Project Listings 2009-11

Northwest Region	
Project Title/Description	Expenditures 6/30/10
Unobligated Funds \$235,795	988
Tow Zone Signs \$16,000	0
LCE Design \$897,000	256,036
Mats Lab Investigation \$10,000	4,779
Tort Claim Investigation \$15,000	113
Central Operations Customer Response \$79,000	29,506
Central Operations Safety Response \$10,000	6,232
Freeway Operations Customer Response \$58,000	10,460
ITS Operations Customer Response \$35,000	11,432
Mt. Baker Area Customer Response \$132,000	56,036
Mt. Baker Area HAL Enhancements \$10,000	428
Mt. Baker Area Safety Enhancements \$25,000	13,445
Snohomish Area Customer Response \$177,000	83,327
Snohomish Area Safety Enhancements \$80,000	39,886
King Area Customer Response \$295,000	127,476
King Area HAL Enhancements \$65,000	0
King Area Safety Enhancements \$100,000	44,385
Klickitat Dr Ramp Guardrail Terminal \$10,500	0
SR 529 Signing to NB I-5 \$12,000	0
Upgrade Wapiti Controllers \$10,000	27
SR 18 Black Diamond I/C Ramp Entries \$20,000	358
SR 99 @ 116 th Controller Replacement \$6,000	7,219
SR 9 @ 4 th Street Access Management \$10,000	13,700
SR 164 th @ 180 th Exit Left Pocket & Add Flasher \$20,000	4,424
ST Tree in Service Evaluation Agreement \$18,000	5,733
I-90 Exit 25 Sign Installation \$7,000	15,759
SR 20 Spur Commercial Ave Inspection \$20,000	20,032
SR 104 Edmonds Ferry Holding Lane \$30,000	\$33,665
SR 900 @ Boeing Access Signal Integration \$35,000	1,806
SR 18 @ Issaquah/Hobart & 256 th Wrong Way Prev. \$15,000	18,569
I-5 @ Military Rd Wrong Way Prevention \$16,000	7,151
SR 522 @ SR 9 Wrong Way Prevention \$11,000	2,804
SR 527 I/C Signals Central Ops Upgrade \$45,000	3,984
SR 516 I/C Signals Central Ops Upgrade \$30,000	7,295
SR 202 Vic SR 522 I/C Signals Central Ops Upgrade \$40,000	4,171
I-5 Ramp Terminal Signals @ 188 th St \$30,000	23,339
I-90 North Bend Roundabout Signing \$28,000	11,253

Northwest Region – Continued

Project Title/Description	Expenditures 6/30/10
Snohomish PUD \$478	478
I-5 Exit Signs to SR 599 \$13,500	11,467
CT Park & Ride Signs \$13,000	6,315
I-5, I-405, US 2, SR 167 No Parking Signs \$35,000	34,229
SR 523 @ 145 th St Barrier Installation \$10,000	10,351
I-5 @ 188 th I/C Pedestrian Shoulder \$7,000	2,702
Fiber Connection-Everett Signals \$200	128
New Controllers @ I-405 @ SR 181 \$22,000	12,519
Verizon Conduit on Everett Bridges \$25,000	17,156
I-5, SR 20, SR 530, Sauk-Suiattle Signs \$40,000	30,986
SR 18 Tiger Mtn Summit – I-90 Traffic Data Collector \$17,000	9,335
I-5 SB Exit 143 Sign & Stripe \$10,000	8,245
SR 530 Install Solar Pavement Markers \$10,000	167
UPS Installation @ Traffic Signals \$15,000	5,726
I-5 North ITS Investigation \$20,000	7,154
SR 169 @ 196 th Ave SE Replace Controller & Cabinet \$15,000	4,123
SR 202 @ 308 th Restripe \$14,000	1,980
I-90 Snoqualmie Pkwy @ SR 18 Re channelize \$9,000	6,091
I-5 Exit 189 Ferry Signs \$30,000	22,542
SR 525 Ferry Lane @ 5 th Street I/S \$14,000	2,949
SR 509 S Cloverdale Signal \$5,000	909
TOTAL	\$1,061,370

NORTH CENTRAL REGION	
Project Title/Description	Expenditures 06/30/2010
Area 1 Signs \$30,000	21,336
Area 2 Signs \$30,000	4,554
Area 3 Signs \$30,000	12,403
Area 4 Signs \$2,000	1,307
Region wide Minor Striping/Channelization Modifications	2,810
Region wide Minor WSP Requested Enhancements	1,131
SR 28 MP 0.31 Valley Mall Parkway Signing \$1,196	1,196
US 97A Install Chelan School Zone Signs & Beacon \$2,012	2,012
I-90 @ Vantage Ethernet Upgrade \$2,819	2,819
US 97 MP 217.6 Guardrail Extension \$621	621
US 2 @ Saunders Rd Int & /Follow thru Sign \$717	717
US 97A Solar Beacons For Chelan School Zone \$5,496	5,496
US 2 MP 85 Stevens Pass Closure Flip Signs \$12,986	12,986
US 2 MP 100 Leavenworth Signal Comm & Cameras \$12,934	12,934
US 2 MP 81.82 Nason Creek Rest Area Camera \$10,000	13,944
SR 171 MP 0.76 Development for Pedestrian Crosswalks \$10,000	1,249
US 2/SR 97 MP 136 Warning Signs for Left Turns \$2,104	2104
SR 17 MP 50-57 Install Back Up Power Equipment \$5,000	4324
US 2 MP 111.98 Bike Path Access @ TitchenelWay \$10,000	14,794
SR 285 MP 0.08 Sellar Cameras Comm Relocate & Upgrade \$9,500	9,022
TOTAL	127,759

OLYMPIC REGION	
Project Title/Description	Expenditures 6/30/10
I-5 @ Tumwater Blvd LCE Project \$35,000	0
Minor Enhancement <\$2,000 \$217,000	158,092
Region wide Sign Crew	112,662
QE Project Documentation (Julie) \$100,000	27,974
WSP Aerial Surveillance Marker \$6,000	8,904
Inigo Equipment \$11,000	10,850
SR 12 Replacement Sign \$2,600	2,288
SR 104 Kingston Study \$10,000	27,218
I-5 Congestion Warning Sign \$2,000	2,349
SR 160 John Sedgwick School \$3,000	0
SR 101 @ SR 3 Left Turn Re-stripe \$10,000	7,944
VMS Translator \$50,000	48,813
SR 3 SB Off Ramp to Trigger \$6,500	2,424
SR 3 SR & SR 16 Gorst Signs \$3,850	2,227
Port Townsend Crosswalks \$3,000	2,816
SR 167 River Rd Signing	0
Little Valley Lane Revisions \$10,000	8,034
SR 507 Deschutes Guardrail Extension \$20,000	15,044
US 101 Holland & Orcas Dr Left Turn Pockets \$40,000	8,706
TMC Server Replacement \$7,500	370
SR 305 Reductions \$3,800	1,774
I-5 Center Street MP 117.96 \$17,000	6,372
SR 16 MP 9.93 WB \$2,900	2,848
SR 106 MP 0 to MP 20 \$6,100	4,874
SR 12 Speed Zone Sign Request \$5,000	1,368
SR 510 @ SR 507 "Entering Yelm" Signs \$2,300	2,157
I-5 "JBLM Next Six Exits" Signs \$10,000	2,934
Tacoma Museum District Signing \$17,700	4,531
SR 303 Gore Line \$3,000	1,899
SR 305 Day Road Signal Revision \$5,000	3,832
SR 101 No Pass Strip Removal \$2,500	1,225
I-5 Exit 107 @ Pacific Ave NB Off Ramp \$3,000	1,218
US 101 SB Couplet Yield & Signing \$6,000	2,126
Purdy Creek Stop Bars \$2,600	2,119
NW Greaves Way Signing \$3,500	3,382
I-5 MP 131.75 NB Off Ramp \$2,500	1,742
SR 16 Speed Zone/Estimate \$8,300	106
SR 305 @ Bond Rd \$7,500	623
Center Drive Alternative \$10,000	33,609
SR 104 MP 15.50 Vic. \$20,000	1,026
TOTAL	\$526,480

SOUTHWEST REGION

Project Title/Description	Expenditures 06/30/2010
State Work Force – 1 FTE	10,303
Completion of 07-09 LCE Projects \$20,000	347
Misc. Warning Signs \$55,000	15,041
Misc. Regulatory Signs \$45,000	3,380
Misc. Brown and White Signs (Recreational/Cultural) \$5,000	15,501
Misc. Green & White Signs (Informational) \$40,000	29,906
Misc. Other Signs & Signs Under \$5,000 - \$35,000	28,163
Regional Traffic Counts \$10,000	103
Left Turn Channelization Projects	27,832
Total LCEs under \$5,000 per project	29,948
CAL/CAC Design \$10,000	1,596
IR Equipment & Support \$48,000	1,358
TMC Equipment & Support \$45,000	2,454
Portable Traffic Video Recorder \$5,000	3,659
Pavement Marking Enhancements	4,829
SR 12 Speed Study Vic Randle \$5,000	9,444
SR 500 Lacamas Lake Bike/Ped Path	18,404
SR 502/503 Street Name Signing \$7,000	2,897
SR 12 Speed Study Vic Mossyrock \$5,000	5,940
SR 503 Median Curb \$16,000	8,499
SR 4 Pedestrian Crosswalk Enhancement \$8,000	1,840
EOC Equipment & Support \$5,000	45
I-5 VMS Upgrade \$19,000	21,942
US 12 Lights on for Safety Signing \$5,000	11,499
SR 503 Sea Wall Guardrail \$20,000	134
SR 500 Padden Parkway & 152 nd I/S Improvements \$6,000	0
TOTAL	\$255,064

SOUTH CENTRAL REGION

Project Title/Description	Expenditures 06/30/2010
Minor Signing Modifications \$10,000	3,192
Safety & Traveler Information Equipment \$6,000	0
State Work Force	2,982
I-82 Install 2 Green Guide Signs 1,000	0
I-82 S1 01413 Ramp signing \$3,500	859
I-82 EB Selah Creek Rest Area Off Ramp Signing \$11,800	18,241
US 395 Upgrade Signal Control System \$6,000	5,335
US 12 @ N 16 th Ave I/C Stop Control \$3,000	4,767
SR 397 Legislative Signing \$22,800	17,251
SR 240 Richland Signing \$3,800	3,069
I-90 VSL Signing \$8,000	6988
I-90 NW Region HAR Sign \$2,500	2,208
US 395 Pedestrian Signal Adjustments \$8,000	4,638
I-82 West Richland Signing \$8,000	10,755
I-182 Speed Limit Signing \$8,000	8,873
US 97 MP 50.9 Cattle Guard \$7,000	7,251
SR 240 WB Edison Ramp Signal \$50,000	56
US 12 "Turn on Headlights" Signs \$2,500	3,325
SR 240 Beloit Rd Traffic Marking \$1,200	1,677
I-182 @ WB 4 th Ave On-Ramp Chevrons \$1,300	627
I-182 S1 01413 Radar Sign \$12,000	0
TOTAL	102,094

EASTERN REGION

Project Title/Description	Expenditures 06/30/2010
SR 20, US 395, SR 26 HAR Site Upgrade PE Phase \$24,000	0
Customer Response Signing in Maintenance Area 1 \$60,000	14,932
Customer Response Signing in Maintenance Area 2 \$15,000	17,112
Customer Response Signing in Maintenance Area 3 \$15,000	5,398
Customer Response Signing in Maintenance Area 4 \$15,000	8,638
2009 Ramps SR View \$10,000	7,820
US 195 Install Colton School Flasher Signs \$7,500	5,366
SR 27 Install Freeman School Flasher Signs \$7,500	1,278
SR 904 Cheney Preemption Systems \$13,015	12,071
SR 20 Colville High School Zone Flasher Revision \$5,000	0
TOTAL	\$72,615